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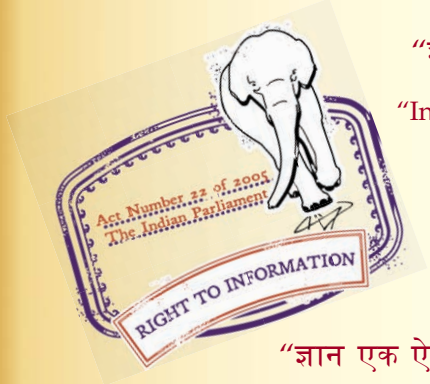
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 11031 (1984): Recommendations for storage and handling of inner tubes, tube valves and flaps for use with penumatic tyres for automotive vehicles [TED 7: Automotive Tyres, Tubes and Rims]



"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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UDC 629·113·012·554·004·3/·4

(Reaffirmed 2001)

Indian Standard

RECOMMENDATIONS FOR STORAGE AND HANDLING OF INNER TUBES, TUBE VALVES AND FLAPS FOR USE WITH PNEUMATIC TYRES FOR AUTOMOTIVE VEHICLES

[Ref : Doc : EDC 83 (3800)]
Tyres, Tubes and Rims Sectional Committee, EDC 83

1. Scope — Covers recommendations for storage and handling of inner tubes, tube valves and flaps for use with pneumatic types for automotive vehicles including earthmoving machinery, off-the-road vehicles, industrial trucks and agricultural tractors and trailers.

1.1 This standard is not applicable to inner tubes and tube valves for bicycles and rickshaws.

2. New Inner Tubes

2.1 *Receipt* — It shall be ensured that the inner tubes received are packed individually in suitable bags. If they are not packed individually and are bulk packed, it shall be ensured that the package contains tubes of same size. It shall also be ensured that they have been treated suitably during manufacturing to avoid adhesion to each other during storage.

2.1.1 The receiver shall mark each consignment with:

a) Date of receipt,

b) Quantity received, and

c) Supplier's name.

2.1.2 If the inner tubes are received fitted inside the tyres, with or without flaps, the pressure shall be kept to the minimum necessary for the tubes to be held in position inside the tyre.

2.2 *Warehouse* — Condition of the warehouse shall be such that the tubes are not exposed to the atmosphere.

2.2.1 The inner tubes shall be stored in a warehouse to prevent exposure to light from skylights, windows, doors or other openings. Skylight glass shall be painted all over with dark paint. Any openings shall be kept closed so that light entering the warehouse is reduced to the minimum possible. Electric lights shall not be left 'ON' beyond the time necessary.

2.2.2 In case the warehouse, where tubes are stored cannot be darkened for some reason, the storage piles of tubes shall be carefully covered with tarpaulin or some reasonably heavy woven fabric for complete protection against light, air current, dirt, water, etc.

2.2.3 The tubes shall not be stored in a room where electrical discharges occur, or are likely to occur, as a result of the operation of electric motors, arc welding, generators, switches or other electrical devices.

2.2.4 The tubes shall not be piled near radiators or other sources of heat or air coolers. The temperature in the warehouse shall be kept as low as possible. Storage at sub-zero temperatures shall be avoided. However, where it is necessary to do so, the tube manufacturer may be consulted for storage, handling and use.

2.2.5 Air draughts shall be avoided in the warehouse to stem deterioration of tubes due to continued supply of oxygen in the air currents.

2.2.6 Excessively, high humid atmosphere shall be avoided in the storage space, though slight humidity may be allowed. High humidity causes moisture to condense on the tube surface resulting in excessive tube inflation in service. This affects the service life and performance of tubes.

2.2.7 Storage arrangements shall be so planned that stacks are rotated to move the oldest tubes first and any accumulation of very old stocks shall be avoided.

2.3 *Stacking and Storage* — The new inner tubes shall be stored inside warehouse meeting the requirements laid down in **2.2**.

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2.3.1 Stacking of tubes on dirty floors shall be avoided. If the tubes are to be stacked on floor a foundation of clean wooden strips of about 13 mm thickness shall be laid on the floor to avoid contact with dirt, oils, grease, solvents, floor polish, etc.

2.3.2 Inner tubes shall be so stacked that the load on them does not cause any permanent folds or creases.

2.3.3 Inner tubes shall not be hung on a nail or arm projecting from a wall.

2.4 *Handling* — For handling of inner tubes following precautions shall be observed:

a) Do not use hooks for lifting tube bags, and

b) Do not lift inner tubes by holding valve stem.

2.4.1 Individually packed inner tubes shall not be taken out of the original packing until required for use.

2.5 *Issue* — Storage of Inner tubes beyond one year shall be avoided as physical properties of tubes tend to progressively deteriorate. While issuing the inner tubes from stores principle of 'first-in-first-out' (FIFO) shall be applied.

3. Tube Valves

3.1 *Receipt* — It shall be ensured that tube valves received are packed in suitable boxes to avoid contamination with foreign matter.

3.1.1 Each box shall have valves of one type only. The box shall be marked with the valve designation according to IS : 10939-1984 Designation system for tyre tube valves for automotive vehicles.

3.2 *Warehouse* — Tube valves shall be stored inside warehouse meeting the requirements laid down in **2.2.**

3.2.1 Tube valves shall not be exposed to sun and rain.

3.3 *Stacking and Storage* — The packed tyre tube valves shall be stored in a cool dry place.

3.3.1. Boxes containing tyre tube valves, spuds, etc. shall be so stacked that no distortion, folds or creases are caused to the rubber base by too high a stack or damaged boxes.

3.3.2 Prolonged storage of tube valves shall be avoided, since physical properties of tube valves tend to progressively deteriorate.

3.4 *Issue* — Tube valves shall be issued on the principle of 'first-in-first-out' (FIFO) to ensure minimum prolonged storage of tube valves.

4. Flaps

4.1 *Receipt* — Where flaps are received fitted inside the tyres along with inner tubes, the assembly may be stored according to procedures laid down in 'Indian Standard Storage and handling of pneumatic tyres for automotive vehicles ' (*under preparation*).

4.2 *Warehouse* — Flaps shall be stored inside a warehouse meeting the requirements laid down in **2.2.**

4.3 *Stacking and Storage* — Stacking requirements laid down in **2.3.1** shall be followed.

4.3.1 Bulk storage in one lot shall be avoided to prevent any permanent folds or creases.

4.4 *Issue* — Flaps shall be issued on the principle of 'first-in-first-out (FIFO) ' to ensure minimum prolonged storage of flaps.

EXPLANATORY NOTE

This standard is one of the standards on the recommendations for storage and handling of tyres, inner tubes, flaps, rims' etc. The other standard in this series being ' Indian Standard Storage and handling of pneumetic tyres for automotive vehicles ' (*under preparation*).

This standard has been prepared to help the manufacturers, organized consumers and tyre and tube dealers for storage of inner tubes, tube valves and flaps.

It is well known that rubber products deteriorate when exposed to sunlight, air currents, dirt, moisture, heat, etc. Therefore, these reccmmendations outline the methods to prevent inner tubes with their contact. Electrical discharges in the vicinity of inner tubes have to be avoided as they generate ozone which greatly accelerates oxidation and deterioration of rubber products. High ambient temperatures also accelerate deterioration of rubber products. Sub-zero temperatures cause rubber products to become stiffer causing embrittlement and, therefore, for operation and storage at such low temperatures, tube manufacturers should be consulted. Air currents increase oxygen supply in the warehouses thereby causing oxidation of inner tubes, therefore, draughts should be avoided.

The deleterious effects of the above factors can be minimized by a careful choice of storage conditions. An inner tube or tube valve or flap may prematurely fail in service because of poor storage conditions.

Conformance to the recommendations in this standard can lead to increase in service life of inner tubes, tube valves and flaps.

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